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Primary Care Screening, Brief Intervention, and Referral to Treatment for Adolescent Substance Use in Lebanon: A National Cross-sectional Study

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ABSTRACT

INTRODUCTION: Substance use among adolescents is on the rise globally. Adolescents rarely seek help for problematic substance use and healthcare professionals can easily fail to identify adolescents with risky substance use. There is therefore a significant global need for substance use screening by healthcare professionals followed by appropriate intervention. Screening, brief intervention, and referral to treatment (SBIRT) is an evidence-based practice that enables clinicians to determine adolescents' risk for substance use and intervene accordingly. However, little effort has been placed on empowering primary care clinicians to use it in Lebanon. We explored the attitudes, perceptions, and practices of primary care nurses and physicians regarding adolescent SBIRT use.

METHODS: The study used a cross-sectional multisite survey design targeting urban and rural areas in Lebanon. A national sample of 140 physicians and nurses was recruited using random sampling stratified by governorate. Participants completed mailed or online surveys addressing their practices, attitudes, role perceptions, and self-efficacy regarding SBIRT use.

RESULTS: This study revealed that 57.8% of healthcare professionals were not familiar with the SBIRT model and that 76.2% did not practice SBIRT in their setting. The majority addressed the problem of substance use through educating and counseling adolescents about the dangers of substance use (84.2%) and encouraged them to stop (82%) but only 2% reported using standardized instruments for substance use screening. Most participants (88.1%) reported their willingness to use SBIRT in their clinical practice and 92.4% expressed an interest in receiving SBIRT training. Overall, the results showed positive attitudes ($M = 4.38$, $SD = 0.89$) and role responsibility ($M = 4.47$, $SD = 1.62$) toward addressing substance use in adolescents, in addition to a high level of perceived self-efficacy in addressing substance use ($M = 4.04$, $SD = 0.92$). Our results showed minimal differences between nurses' and physicians' perceptions and self-efficacy regarding SBIRT use.

CONCLUSIONS: Our study confirms the lack of a standardized approach toward adolescent substance use screening and intervention by primary healthcare providers in Lebanon but revealed the readiness and willingness to receive training and proper support to adopt an evidence-based approach such as SBIRT.

KEYWORDS: Adolescents, nurses, physicians, SBIRT, substance use, screening, brief intervention, primary care

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Introduction

Adolescent substance use is a major worldwide public health concern that poses significant social, health, and economic threats.[1] In low-to middle-income countries, 13.6% of adolescents aged 12 to 15 use tobacco.[2] In the United States of America (USA), 43% to 58% of 12 graders report having used alcohol, marijuana, vaping, and/or illicit drugs at least once in their lifetime,[3] and in Europe approximately 70% of school students have used alcohol.[4] Adolescence is a unique developmental period typically associated with risk-taking behavior, and it marks the initiation of experimenting with substances such as alcohol, tobacco/nicotine, and drugs.[5] During this period, adolescents undergo critical stages of brain development, which may be seriously disrupted and irreversibly damaged by substance use.[6] In contrast, early risk identification, intervention, and prevention of substance use among adolescents may limit such adverse consequences.[7,8]

Internationally, it is reported that healthcare providers can easily fail to detect substance use in adolescents about 75% of the time.[9] Healthcare providers often lack adequate preparation, confidence, and knowledge to identify and manage substance use issues among adolescents, and this may have negative consequences.[10] For instance, in the USA, only 9.1% of 1.3 million adolescents with substance use problems received treatment.[11] Moreover, adolescents rarely seek help for their substance use,[12,13] and they generally do not consider it to be problematic.[14] Primary care nurses and physicians usually work in environments that adolescents frequently visit, and thus they

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are favorably positioned to identify and manage substance use among adolescents.[13,15,16]

Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an evidence-based clinical model for the early identification of substance use, early intervention, and prevention of substance use disorder.[17] Screening allows healthcare providers to identify low, moderate, and high risk adolescent substance use. A Brief Intervention follows screening and is based on the adolescent's risk category. Low risk behavior is usually praised, reinforcing resilience, and smart decisions not to use. Brief Intervention for adolescents with moderate risk is geared toward motivating the adolescent to stop or reduce substance use. Those with high risk substance use are encouraged to talk about their experience to provoke a heightened insight of negative consequences. They are usually referred to specialized assessment and treatment.[13,18,19] SBIRT has been recommended by the National Institute on Alcohol Abuse and Alcoholism[19] and the American Academy of Pediatrics[20] as a simple, quick, empirically derived model that allows healthcare practitioners to identify adolescents at risk for substance-related problems and intervene accordingly. The recommendation for the use of SBIRT is based on positive outcomes from the largest randomized controlled trial investigating adolescent SBIRT models in pediatric primary care.[21,22] However, nurses and physicians receive little training to use SBIRT worldwide although a few countries, such as the USA, have seen growing rates of training and use, particularly as SBIRT practices can be a reimbursed cost of care.[23,24]

SBIRT practices regarding adolescent substance use are largely unknown in the Middle East and North Africa (MENA) region, that is, the greater Middle East area, and in Lebanon.[25] This issue warrants special attention in Lebanon, which ranked the third largest per capita use of alcohol in the MENA region, with 27% of adolescents between 13 and 15 years of age reporting drinking alcohol.[26] Research shows that among high school and university students, alcohol and nicotine are the most commonly used substances, followed by marijuana/hashish[27] whereby the average age of onset for drug and alcohol use in Lebanon is lower than 14 years.[26] Based on a national study among 6th and 7th grade students in Lebanon, 22% reported to be current waterpipe tobacco smokers.[28] The prevalence of cigarette smoking among the youth in Lebanon is 18%. Despite the early age of initiation and the high prevalence rates of substance use, only 2.8% of school students reported seeking treatment for substance use, with unperceived need being the most reported reason for not seeking care.[27] It is important to implement SBIRT in environments that adolescents frequently visit such as primary healthcare settings and schools.[29] Therefore, primary care providers are best suited to implement the SBIRT model for screening, early interventions, and prevention of substance use among adolescents.

A recent national report on the drug situation in Lebanon pointed to the lack of national evidence-based drug prevention programs.[30] Also, little is known about the screening practices of adolescent substance use by primary care providers in Lebanon although the Inter-Ministerial Substance Use Response Strategy had listed detection of substance use as one of the priority goals (objective 2.1.11) for the year 2020.[31] The present study responds to this objective, and prepares the ground for potential SBIRT implementation in primary care settings and schools in Lebanon.

The SBIRT program matrix was used as a conceptual framework to guide this study.[32] This framework has been used to guide SBIRT implementation research by providing a template for identifying and organizing variables associated with successful SBIRT implementation across various settings.[33] The SBIRT matrix incorporates multiple elements including SBIRT services, performance sites, provider attributes, patient/client populations, and management structure and activities.[32] The focus of this study was the provider attributes element that addresses personal characteristics, clinical training, education, counseling experience, self-efficacy, and treatment philosophy incorporating attitudes and perceptions.

Accordingly, the purpose of this study is (1) to explore the attitudes, role perceptions, and practices of nurses and physicians regarding adolescent substance use screening and interventions; (2) to identify potential barriers and challenges to SBIRT implementation in primary care settings in Lebanon; and (3) to assess potential differences between nurses and physicians regarding SBIRT use with adolescents.

Methods

Design and sample

An exploratory cross-sectional design was used to collect survey data on nurses' and physicians' attitudes, perceptions, and practices regarding SBIRT use with adolescents in primary care settings.

In an attempt to have a nationally representative sample of primary care nurses and physicians in Lebanon, we sent invitations through the Lebanese Ministry of Public Health and the Lebanese Pediatric Society. We used random cluster sampling technique by recruiting an equal number of physicians and nurses from each of the 8 governorates across the nation (ie, Akkar, Baalbek-Hermel, Beirut, Bekaa, Mount Lebanon, Nabatiyeh, North, and South). A total of 609 physicians and 138 nurses were invited, of which140 participants responded including nurses (N = 90), physicians (N = 32), and managers and other professionals (N = 17), yielding a response rate of 5% for physicians and 67% for nurses. Surveys were sent out to randomly selected Primary Healthcare Centers (PHCs) and private clinics throughout Lebanon's 8 governorates. School nurses were targeted through the Order of Nurses in Lebanon, without random sampling because of the small number of registered school nurses in Lebanon.

Variables and measurements

The survey used for this study was adapted from Harris et al,[16] which addresses the SBIRT services and provider attributes elements of the SBIRT matrix framework. This 44-item

survey measures attitudes, perceptions, and practices of SBIRT among healthcare providers, and it is based on the 8-component model of SBIRT assessing: (1) substance use, (2) quantity and frequency of substance use, (3) the use of standardized screening tools, (4) provision of positive feedback, (5) explanation of substance use consequences, (6) readiness to change risky substance use, (7) advice of how to change risky substance use, and (8) referral to specialty treatment when needed. The survey items were reviewed by the authors for cultural appropriateness and minor edits were made to match the Lebanese healthcare system. For example, "Medicare" was changed to "National Social Security Fund," which is the main public insurer for many Lebanese.

The survey assessed the following variables. All items were rated on a 5-point Likert scale and reported as either a frequency score or averaged to yield a total score.

- **Demographic variables** including age, gender, year of experience, professional role, highest degree, and governorate.
- **SBIRT practices** were measured by inquiring about whether or not participants were interested in or currently practiced any of the SBIRT components, along with a frequency indicator on a scale of 1 to 5 (eg, "*screen adolescents using standardized tool*").
- **Attitudes** toward screening for substance use were measured by inquiring about participant beliefs regarding the importance of screening, and whether that would lead to intervention and better outcomes for adolescents on a scale of 1 to 5 (eg, "*screening for risky substance use leads to improved outcomes*").
- **Role perceptions** were measured by inquiring about perceived role responsibility on a scale of 1 to 5 (eg, "*in your opinion, it is the role of the clinician/nurse to. . .*").
- **Perceived self-efficacy, comfort, and effectiveness** were measured on a scale of 1 to 5 by addressing the 8-component model ("*I am confident in my ability to. . .*") and by asking about comfort (eg, "*How comfortable or uncomfortable do you feel discussing. . .*") and effectiveness (eg, "*How effective or ineffective do you feel you are in helping adolescents achieve change in. . .*") in discussing a behavioral issue and achieving related change.

Survey translation. The survey was translated into Arabic language by a native translator and revised by the Principal Investigator and another colleague. It was back translated to English language by a different research team member. Semantic equivalence was demonstrated by both versions. The surveys were then pilot-tested with 3 participants from the target sample to (1) ensure clarity of the items and cultural relevance, and to (2) reduce the length of the survey when appropriate. Data from the pilot tests were not included in the final sample.

Data collection

The survey was sent to the randomly selected PHCs, private clinics, and school nurses by mail and email (when available). Mailed questionnaires were sent in sealed packages using a secured mailing service in Lebanon. Both mailed and emailed packages included (1) English and Arabic versions/links of the surveys and informed consent, (2) a pocket card detailing information about SBIRT, and (3) an incentive flyer for eligibility to enter a draw to win 1 of 6 gift vouchers with a value of 100$. Three reminders 2 weeks apart were sent to encourage participation. Ethics approval was obtained from the Institutional Review Board at the American University of Beirut and administrative approvals were secured from all collaborating organizations. Participants were well informed of the anonymity and confidentiality involved in completing the survey, their freedom to participate, and their roles, rights, potential benefits, and risks. Participants' consent was implied by survey completion.

Data analysis

To meet aims 1 and 2, descriptive statistics of participants' SBIRT practices, attitudes, role perceptions, and self-efficacy were computed by provider role. Means and standard deviations were reported for continuous variables and frequencies for categorical variables. To address aim 3, differences between nurses and physicians on categorical variables were analyzed using chi-square tests, while 2-sample *t*-tests were used for continuous variables. Associations between attitudes, perceptions, and frequency of SBIRT practice were examined through Pearson correlations. Linear regression was used to identify socio-demographic predictors of SBIRT use/interest and self-efficacy. The data were analyzed using IBM Statistical Package for the Social Sciences (SPSS) 24.0 for windows. The data were checked for distribution, skewness, and linearity and most variables were normally distributed. Patterns of missing data for continuous variables were tested through a Missing Value Analysis (MVA). Results indicated that the missing data for the confidence, responsibility, effectiveness, and comfort subscales were Missing Completely at Random (MCAR).

Results

Sample characteristics

Table 1 summarizes the sociodemographic characteristics of the sample. The majority of nurses and physicians (90.4%) provided direct clinical services to adolescents in PHCs and about 49% practiced in schools. Nurses were mostly females (95.6%) with several years of work experience ($M = 10.34$, SD = 8.17 years), and held technical nursing degrees (67.8%). Half of the physicians were males (51.6%), with more than 15 years of work experience ($M = 16.77$, SD = 12.21), the majority being pediatricians (71.9%). Participants estimated that about 44% of their

Table 1. Characteristics of study participants (N = 140).

PARTICIPANTS CHARACTERISTICS	VALID N	PERCENTAGE (%)/MEAN ± SD
Age in years	90	Mean 37.43 ± 11.44
Years of experience	84	Mean 11.77 ± 9.74
Female gender	132	84.1
Professional role and Specialty*	133	
Physician		24.1
General physician		21.9
Family medicine		3.1
Pediatrician		71.9
Registered nurse		69.9
Primary care nurse		82.0
School nurse		6.7
Pediatric nurse		10.1
Director/manager		8.3
Other (data entry, quality coordinator, health social worker/psychologist)		6.0
Highest degree	133	
Technical degree		51.1
University degree (BA/BS)		18.8
Postgraduate degree		8.3
Medical doctor		21.8
Geographical areas[a]	131	
North		33.6
South		21.4
Beirut		19.8
Beqaa Valley		16.8
Mount Lebanon		12.2

[a]Valid percent more than 100 because some participants had more than 1 professional role and some practiced in more than 1 governorate.

adolescent clients smoked cigarettes, 13% used alcohol, 9% used non-prescribed drugs, and 5% used marijuana and/or other illegal drugs. About half of the sample (48.8%) estimated a medium-sized adolescent population in their clinics. The rest estimated small (28.8%) and large (16.3%) adolescent populations.

Current SBIRT practices and interests

Table 2 displays current practices and interests in the implementation of various aspects of the SBIRT model. Regarding familiarity with SBIRT, more than half of the sample (57.8%) was not at all familiar, 19.3% were not very familiar, 21.5% were somewhat familiar, and only 1.5% were very familiar with the SBIRT model. While some participants (23.8%) practiced some components of the SBIRT model such as screening for substance use (9.8%) and conducting referrals (9.0%), the majority (76.2%) did not practice any components of the SBIRT model in their setting regardless of familiarity.

Of the 23.8% of participants who reported using 1 or more aspects of SBIRT, 2% reported using standardized instruments for substance use screening, 84.2% addressed the problem of substance use through educating and counseling adolescents about the dangers of substance use, and 82% encouraged them to stop. Others contacted a family member or a supervising adult person (63.6%), gave educational material (63.6%), contacted their primary care physician (53.8%), and referred (50.8%) them to a mental health specialist or a social worker.

Table 2. Current practices and interests in the different aspects of the SBIRT model.

CURRENT PRACTICES AND INTERESTS	VALID N	PERCENTAGE (%)
Screen adolescents using standardized tool	130	
Interested/very interested		73.8
Currently practiced		3.1
Ask adolescents about their substance use	131	
Interested/very interested		72.5
Currently practiced		4.6
Provide positive feedback and encouragement to adolescents who are not using substances	133	
Interested/very interested		86.5
Currently practiced		4.5
Explain the effects of substance use	132	
Interested/very interested		86.3
Currently practiced		3.8
Assess adolescent's readiness to change their risky substance use	132	
Interested/very interested		81
Currently practiced		1.5
Advise adolescents to change their risky substance use	133	
Interested/very interested		85.7
Currently practiced		4.8
Refer adolescents with substance use problems to specialty treatment	130	
Interested/very interested		85.4
Currently practiced		3.1

In terms of SBIRT training, 14.9% of participants received training on screening for substance use and 27.9% were trained in identifying the effects of substance use among adolescents. Most participants (88.1%) reported their willingness to use SBIRT in their clinical practice and 92.4% expressed an interest in receiving SBIRT training. For those currently practicing SBIRT, clinician training, recommendation from the Ministry of Public Health, and discussions with colleagues were the major factors that influenced SBIRT adoption in their practice.

Attitudes and perceived role responsibility and self-efficacy

Figure 1 illustrates the mean scores of all scale items from lowest to highest mean scores, ranging from 0 to 5. Results showed positive attitudes ($M = 4.38$, SD = 0.89) and high role responsibility ($M = 4.47$, SD = 1.62) toward addressing substance use in adolescents, in addition to a high level of perceived self-efficacy in addressing substance use ($M = 4.04$, SD = 0.92).

Perceptions of comfort and effectiveness in creating change

Figure 2 presents the mean scores of the scale items by behavioral issue. Participants reported fairly high levels of perceived comfort in discussing behavioral issues ($M = 4.16$, SD = 1.06) and effectiveness in achieving behavioral change with their clients ($M = 4.47$, SD = 1.62).

Differences between nurses and physicians

Independent *t*-test analyses were conducted to compare mean scores on attitudes and perceived responsibility, self-efficacy, comfort, and effectiveness by professional group. Our results showed no statistically significant differences between nurses and physicians on these scores.

Barriers, challenges, and influential factors

The majority of the sample (66.9%) of 133 participants reported adolescents not telling the truth about their substance

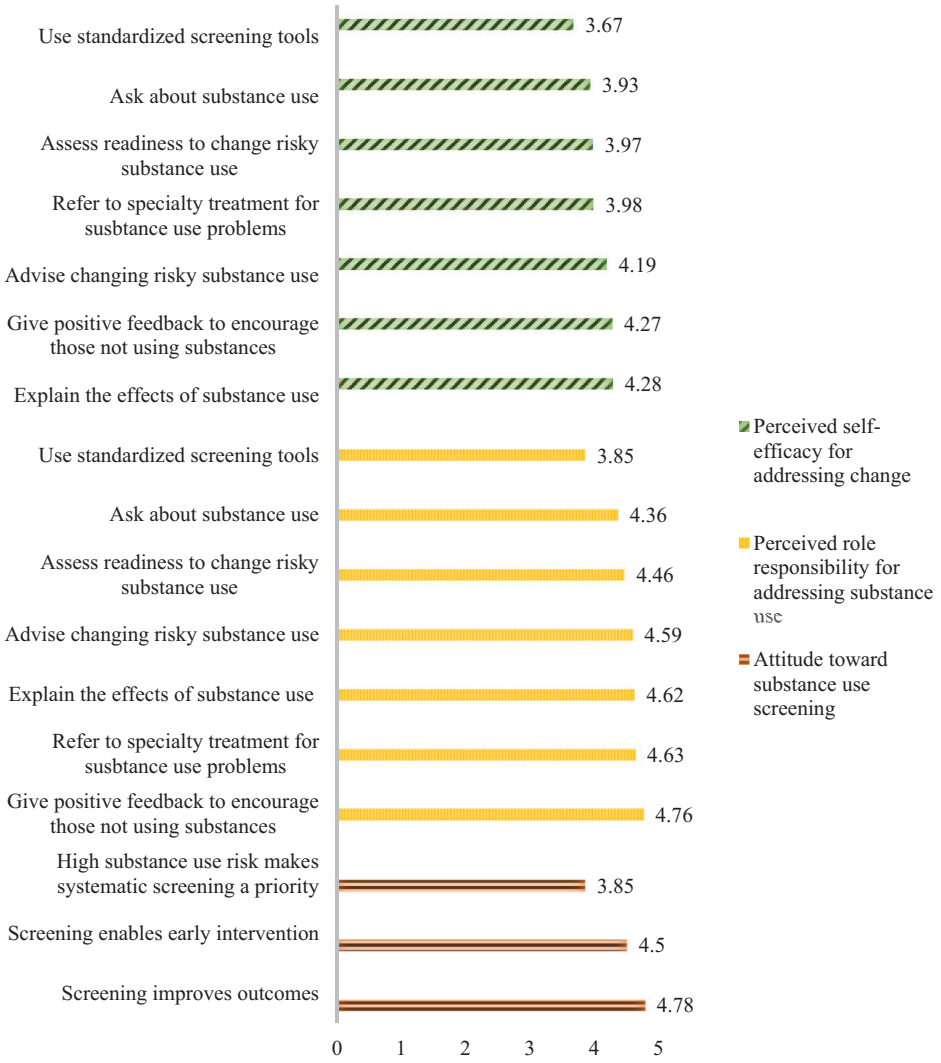

Figure 1. Mean scores of participants' attitudes, perceived role responsibility, and perceived self-efficacy.

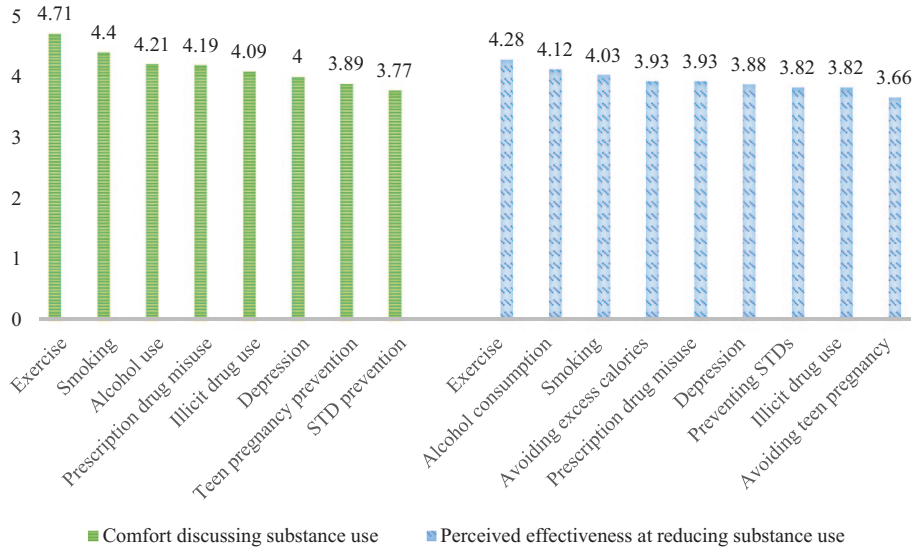

Figure 2. Mean scores of participants' perceived comfort and effectiveness in discussing and achieving behavioral change.

use as a major barrier that prevented them from discussing substance use with adolescents. Other barriers included the risk of the adolescent getting punished (56.4%), time constraints (47.4%), lack of training (46.6%), and lack of staff (36.1%). In addition, more than 3 quarters of participants reported that adolescents do not want to come back for follow-up appointments (76.3%) and are embarrassed to be seen at the clinic (66.1%). The most common reasons for not referring the adolescents with substance use problems to specialty treatment programs were the inability of the patients to afford the costs (60.5%), not interested in seeking treatment (57%), and the lack of available treatment programs near the patients (54.7%). Finally, 55.6% reported that they have a decision-making authority for services delivered in their setting.

On another note, participants reported being influenced by many factors that encourage them to adopt new practices such as SBIRT. The top 5 influential factors included: recommendation of the Ministry of Public Health ($M = 4.31$, SD = 0.83), training opportunities ($M = 4.24$, SD = 0.93), financial resources ($M = 4.17$, SD = 0.99), expert support ($M = 4.16$, SD = 0.98), and recommendation by professional organization ($M = 4.14$, SD = 0.98).

Sociodemographic predictors of SBIRT use, effectiveness, and comfort

Regression analyses were conducted to identify associations between sociodemographic factors, SBIRT use, perceived effectiveness, and perceived comfort. The factors used in the models included age, gender, years of experience, professional role, degree type, and geographical location. Linear regression models were analyzed for perceived effectiveness and comfort in addressing adolescent substance use issues, with none showing statistically significant results. Logistic regression models were analyzed for dichotomous dependent variables of SBIRT use. Adjusting for age, years of experience predicted the likelihood of substance use screening ($\beta = .216$, Wald $\chi^2 = 4.058$, df = 1, $P = .44$). The odds ratio indicated that for every year increase in experience, the odds of screening for adolescent substance use increase by 1.241 with a 95% confidence interval of 1.006 to 1.533. In addition, with substance use screening followed by referral to treatment as the dependent variable, the logistic regression model showed a statistically significant association. Holding a university degree (vs technical degree) increased the likelihood of screening followed by referral to treatment ($\beta = 1.668$, Wald $\chi^2 = 4.179$, df = 1, $P = .41$), with an odds ratio of 5.302 and a 95% confidence interval of 1.071 to 26.243. Multivariate regression analyses and interactions were not possible due to poor power and low sample variability in terms of gender and profession.

Discussion

This study is the first to survey a national sample of nurses and physicians regarding their attitudes, perceptions, and practices related to SBIRT in addressing adolescent substance use in Lebanon. Despite the very limited to no familiarity with the SBIRT model, results showed a vast interest in SBIRT training and high willingness for SBIRT use by primary care and school healthcare providers in Lebanon.

Our findings revealed no differences between nurses and physicians in terms of the attitudes, perceptions, and practices related adolescent SBIRT. This finding contradicts previous findings from the USA where nurses showed lower perceived responsibility and ability in addressing substance use.[16] The lack of differences between nurses and physicians in this study may be related to sampling bias due to the poor physician response rate. A previous study of healthcare provider attitudes toward homosexuality in Lebanon using email surveys reported a comparably low physician response rate.[34] Potential factors of low physician response may be culturally related to preconceived ideas or attitudes regarding drug use and their population or may be due to time constraints. It is likely that the physicians who responded to the survey had more positive attitudes toward addressing substance use had high self-efficacy toward it, and were ready to practice SBIRT more frequently than the general physician population. Future studies may ensure a better physician response rate with face-to-face interviews or text message surveys, avoiding mail, and email surveys. Shorter surveys may also be more appealing. A previous study of physician attitudes toward nutrition counseling reported higher physician response rates with a conference recruitment strategy.[35]

Overall, our findings reveal that only a minority of primary healthcare providers currently screen adolescents for substance use, with even fewer reporting that they follow screening with brief interventions and referral. These are alarmingly low rates of substance use screening as compared to similar international data where at least half of primary care providers reported screening their adolescent patients for substance use.[16,36] The lack of substance use screening is particularly problematic because it ruins any chances of early intervention and prevention of substance use disorder,[37,38] in a country where substance use rates are on the rise.[30] Furthermore, even those who reported screening failed to use standardized tools and consequently relied on direct questioning or clinical impressions which are known to overlook patients with problem use thus depriving them from the needed early intervention.[36] This may result in a compounded effect of no or improper screening that precipitates even more missed opportunities for early intervention and prevention, knowing that there is mounting evidence on the effectiveness of standardized screening tools.[36,37] On another note, the regression models showed that experienced healthcare providers were more likely to perform substance use screening and those with a university degree were 5 times more likely to screen for substance use and refer to treatment than providers with a technical degree in nursing. Both results point to the importance of SBIRT training to increase the odds of adolescent substance use screening and early intervention, as

found in the international literature[29] and in 1 study from the United Arab Emirates.[39] If SBIRT training is undertaken in the future, special training may need to be tailored to nurses with a technical degree.

Participants had very positive attitudes toward screening for risky substance use and perceived that it is their role to use standardized tools. However, participants felt least confident in using standardized tools pointing to a certain reluctance toward standardized screening among primary care nurses and physicians in Lebanon. Similar results were reported in the international literature and were related to poor training, logistic concerns, and the availability of resources needed to handle a positive screen.[16,40,41] In this sample, the significant positive correlation between SBIRT use and perceived self-efficacy points to the potential role of training in augmenting provider confidence in addressing substance use issues and thus encouraging SBIRT practice.[36]

On another note, this study revealed high levels of perceived comfort and effectiveness in addressing substance use issues among adolescents despite the very low screening rates. This raises concern of potentially inflated self-perceptions of ability to address substance use compared to much lower confidence levels found in the international literature.[16,42] Notably, participants felt most comfortable/effective in addressing exercise, smoking, and alcohol consumption, which scored higher than comfort with discussions about excess calories, depression, and STD prevention. However, participants felt least confident in their ability to address illicit drug use and teen pregnancy. Both topics are associated with fear of legal repercussions and social taboos in Lebanon.[43,44] Nevertheless, it is noteworthy to mention that non-governmental organizations and civil societies working in the area of substance use have lobbied and advocated for major policy reforms over the past few years in this area. Most significantly, they have succeeded in shifting the perception of drug use from a legal one to a healthcare one by offering individuals charged with drug use the option to select treatment or prison time.[31] This shift from legal to healthcare framework is a paradigm shift that favors society and provider acceptance of role and patient acceptance of intervention and treatment. Raising provider awareness on such legal policy shifts may be of high importance to increase their confidence in addressing illegal substance use issues.

Strengths and limitations

Our study is the first to explore the attitudes, perceptions, and practices of SBIRT use by Lebanese nurses and physicians working in primary health care settings to address adolescent substance use. Despite its limitations this study may be used to inform future adoption of SBIRT as an early detection and intervention strategy by primary health care professionals. The literature has long suffered poor response rates in studies with physicians[45,46] and so did our study, despite providing both mailed and electronic survey methods, sending frequent reminders, and adding incentives. Another limitation is we were not able to collect data from non-respondents to examine whether there is a non-response bias due to ethical board considerations. Although there were some missing data, they were found to be missing at random. Self-reported data are associated with social desirability bias however; our results are still comparable to international studies. Therefore, it remains important enough to lead to the recommendation of SBIRT use and development of training programs. The design of the study was cross-sectional which limited our ability to develop hypotheses for causal links. Yet, as an exploratory study, this study sets the foundation for future work on SBIRT by informing clinicians, researchers, and policy makers on SBIRT use in Lebanon and laying the ground for future SBIRT adoption.

Conclusion

Overall, our project demonstrates very limited familiarity with the SBIRT model in primary care in Lebanon along with alarmingly low levels of substance use screening for adolescents. Our results support the need for universal SBIRT training and implementation that is sponsored by the Ministry of Public Health in Lebanon. Primary care-specific barriers and facilitators of SBIRT implementation were identified with resulting recommendations. SBIRT is a universal public health approach that standardizes substance use screening and allows to detect and address the level of substance use risk, much before specialized treatment is needed for addiction. SBIRT use may therefore effectively and efficiently address the increasingly rising incidence of substance use in Lebanon and the MENA region.

Implications for SBIRT implementation in practice

Although SBIRT has gained international attention and its practice is widespread, only recently has it been documented in the Middle East. From the available reports, the incorporation of SBIRT in healthcare settings has been well received by professionals, and it has caused positive outcomes in substance use risk assessment, early intervention, and prevention of substance use.[39,47] However, SBIRT practices have not been documented in Lebanon, and our study provides evidence for an urgent need to offer SBIRT training to primary care nurses and physicians. Our findings revealed alarmingly low rates of substance use screening coupled with a high interest in SBIRT training. In addition, this study lays the ground for SBIRT implementation with evidence on primary care-specific barriers and facilitators to SBIRT implementation in Lebanon that may likely apply to the MENA region. Major barriers included, adolescents not telling the truth about their substance use, risk of the adolescent punishment, and time and staff constraints. Similar barriers have been reported internationally[33,48,49] and in the United Arab Emirates.[39] This was also highlighted in the SBIRT clinical report issued by the American Academy of

Pediatricians.[18] The report emphasizes the importance of introducing confidentiality practices to the adolescent on their first interview to foster the physician-adolescent bond and increase the adolescent's likelihood to follow through referrals.[49] Regarding time constraints, both primary care physicians and nurses may be required to step in and conduct SBIRT in a collaborative approach. The complementarity between physicians and nurses, central to this study, is critical to increasing the ability of primary care to successfully integrate SBIRT into routine practice. Future studies are needed to investigate SBIRT implementation and the integration of SBIRT in daily practice in the Lebanese and similar contexts.

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Author Contributions

NA, TA, and GA developed the concept for this study. Hady Naal collected all data from participants. All authors contributed to the first draft of the manuscript. NA, HA, and MM analyzed the data and revised the final drafts for publication.

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